

Remarks

Amendments to the Claims

Independent claims 1, 8, and 10 have been amended to more clearly recite the invention. Each of these independent claims recites the step of adjusting the pressure of the working gas using a said pre-determined working gas pressure relationship for the measured temperature when said measured temperature differs from said reference forming temperature. It is believed that the amendments are as suggested by the Examiner on page 3 of his Office Action dated January 9, 2006. The Examiner's suggestion is gratefully acknowledged. These changes are supported by the specification.

Claims 6 and 7 have been amended to add periods (.) which were apparently missing from the end of text of each claim.

The Claim Rejections

Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rashid et al in view of Spence et al '275. The Examiner is respectfully requested to reconsider and withdraw this rejection for the following reasons.

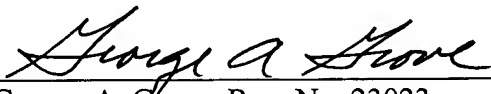
The Rashid et al patent U.S. 6,253,588 discloses a quick plastic forming practice for aluminum alloy sheet material. The Rashid et al patent (hereafter Rashid for brevity) is discussed in paragraph 0003 of the subject specification as background of the invention defined in claims 1-10. The Rashid patent discloses the practice in which an aluminum alloy sheet blank is heated to a suitable temperature in the range of about 400°C to about 510°C and stretched under the pressure of a working gas into conformance with the surface of a forming tool. The gas pressure is increased in a predetermined controlled pressure-time sequence (e.g., in stepwise increments) from ambient pressure to a final level in the range of about 250 psi to about 500 psi or higher. The strategy is to strain and shape the sheet metal as rapidly as possible without tearing or cracking it. However, the pressure application rate has necessarily been conservative because the workpiece heating mechanisms have not necessarily yielded precise temperature control from hour to hour or from workpiece to workpiece in continuous sheet metal forming operations.

The Rashid patent does not disclose any method for adapting the application of working gas pressure to an actual measured temperature at or near the sheet metal forming surface of the forming tool.

The Spence et al patent application publication '275 (hereafter Spence) discloses a superplastic forming practice in which the temperature of the workpiece is continually measured and adjusted. Spence uses a pressure differential in stretching the sheet against a forming surface. But the application of pressure is not altered depending on temperatures measured in the workpiece. Spence's focus is on selectively heating the workpiece and controlling temperature distributions in it to control thickness variations in the formed sheet. Spence is not concerned with adjusting strain rates in the workpiece and adjusting the application of working gas pressure depending on the temperature currently measured in a forming tool.

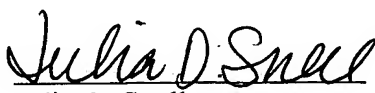
The claims have been amended to clearly distinguish over the disclosures of the Rashid patent and the Spence publication. It is believed that the claims clearly distinguish over these references and that the rejection of claims 1-10 should be withdrawn. It is respectfully requested that claims 1-10 be allowed and the case passed to issue.

Respectfully Submitted,


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